

Iraiyanar Agapporul chronology – myth or reality

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Introduction: Iraiyanar Agapporul¹ is a Tamil grammar work, reportedly revealed through or composed by Iraiyanar, the God. Expounding the meaning of Agapporul (Kalaviyal and Karpiyal, the matter related to inner side of human life, thus datable to time immemorial however, the authorship is attributed to one Nakkirar supposed to belonging to the last Sangam period, i.e, 2000 YBP. But based on syntax, prosody and poetic composition, it is evident that some portions were written even upto 6th to 9th centuries². The development and end of the “Sangam legend” is traced to Jainism³. Though the date of the work may differ according to the factors mentioned, but the data containing under the caption, “The History of three Sangams” of the first Sutra has been thought provoking, debatable and discussed by the scholars, ever since the concept of “Sangam” has been accepted or disputed.

Though many scholars have dealt with Sangams, Tamil Sangams, existence of Sangams / Academies etc., based on Iraiyanar Agapporul, perhaps, few have dealt with the chronology and the numerical data given in the text and commentary. Hence, the data given in the context is taken up for critical study to find out plausible answers to the following questions.

1. What exactly, the data say?
2. The numbers given signify what?
3. How it was obtained / derived?
4. Whether it has any astronomical, mathematical or historical significance?
5. Whether the periodization has followed pattern?
6. Or such concept had any influence on such reckoning?
7. What is the veracity of such data and claims in it?

¹ The Akapporul was transmitted for several centuries in the form palm-leaf manuscripts. The first printed edition was prepared by Damodaram Pillai in 1883. The first critical edition, based on a comparison of all manuscript copies that were then available, was prepared in 1939 by K.V. Govindaraja Mudaliyar and M.V. Venugopala Pillai. A second critical edition, which took into account a few additional manuscripts that came to light subsequently, was published by the Saiva Siddhantha Works Publishing Society in 1969.

² The text of the Akapporul is almost always printed together with the commentary of Nakkiranar, and the two are usually treated as a unity. T. G. Aravamuthan suggests that Ilampuranar, the author of a celebrated 11th-12th century commentary on the Tolkappiyam, also wrote a second commentary on the work, but this is no longer extant.

³ The Naganandi's Madurai Tamil Sangam is referred to for the origin of “Tamil Sangam” myth. The end of this Sangam was perhaps due to the invasion and occupation of the Tamil country by a foreign race called Kalabhras about that period. This incident is attested by the Velvikuti plates of the eighth century CE.

K. Ganapathi Pillai, *The Chronology of some of the Poets of the Tamil Sangam Era*, University of Ceylon Review, pp.29-35.

8. If the data are artificial or poetic imagination, what is the purpose of recording such data?

The data given in the text: The text has 60 sutras with commentary divided into two chapters Kalavu and Karpu eah containing 33 and 27 Sutras respectively. The style of Sutras resemble Tolkappiyam, however, the commentary has certain words, which are clearly of later period. Therefore, the commentary might have have been interpolated later by some vested poets. Here, for the purpose, the available data in the text are tabulated as follows for convenience.

Sangam	No. of poets present	Important poets	Years of existence	The pandyan king started with the reign of	The Pandyan king ending with the reign of
First	4449	549	4440	Kaychinavazhudhi	Kadungan
Second	3705	59	3700	Venthalerchezhiyan	mudattirumaran
Third	449	49	1850	Mudattirumaran	uggirapperuvazhudhi

- Only number of poets and years of existence are given, but not any starting or ending year.
- The name of the first and last Pandyan king of each Sangam period is given, but not all the names of the Pandyan kings.
- No contemporary event or name of any king is given.
- The significance of each given factor / data is not known / given.

No. of Pandyan rulers	The average period of reign	No. of Pandyan who staged the Sangam	The ruling or authoritative work	The place where Sangam was held
89	49 or 50	7	Agattiyam	Madurai
59	61	5	Agattiyam, Tolkappiyam, Mapuranam, Isainunukkam, Budhapuranam.	Kapadapuram
49	37	3	Agattiyam and Tolkappiyam	Uttara Madurai

- The period of reign of each Pandyan for 49/50, 61 and 37 are / will not be accepted by the modern scholars.
- The reason for such longevity of life of kings and rulers are not mentined and known.
- The non availability of literary sources of the corresponding periods poses a big problem.

The important poets of each Sangam	Important Tamil works composed
Agattiyar, Tiripuram eritta virisadaikadavul Kundrerntha Murugavel Murinjiyur Mudinaganar	Paripadal Mudhunarai Mudhukurugu, Kalaniyaviral etc.,

Nidhiyin kizhavar	
Tolkappiyar Irundhaiyur karunkozhi Mosi Vellurkappiyan Tiraiyanmaran Tuvaraikoman Kirnthai.	Kali, Kurugu Vendali Vyazhamalai Agaval etc.,
Sirumedhaviyar Centhanbudhanar Arivudaiyanar Perungundrurkizhar Ilanthirumaran Madurai asiriyar Naklanthuvavanar	Neduthogai Nanuru, Kuruntogai Nanuru, Natrinai Nanuru, Purananuru, Aingurunuru, Paditrippathu, Nutraimbadu Kali, Ezhupadhu Purappadal, Kuttu, Vari, Citrisal, Parisai

- Only generalized names of the poets and the prevalent works are given, that too for illustrative purposes.
- Such generalization with implied adjectives used suggests the Puranic characters.
- However, the contemporaneity of such Puranic characters with Pandya reign and Sangam poets is not given or justified.
- The non-availability of mentioned literary works of the corresponding periods poses a big problem.

It has been clearly mentioned that each Sangam ended with a Uzhi i.e, submergence of land mass or world under seawaters. This is similar to yuga concept of chroniclers who mention about the past three yugas. First the years mentioned are analyzed for any implied significance.

The number of years existence of Sangam: the number of years of existence of the three Sangams has been given as – 4440, 3700 and 1850. The total number of years = 9990.

If the number of years is taken as multiples of the numbers selected, then the order should have been 1850, 3700, 5550 and 7400 and so on with the ration 1:2:3:4 and so on. As the number 37 appears to be interesting, if the years are given as its multiples, they become as shown in the table:

No.of Years (1)	In multiples (2)	Multiples of 37 (3)	In terms of 360 (4)	In terms of divine years (5)	In terms of astronomical circle (7)	Divided by	
						27	12
1850	1x2x5x5x37	37x50	360 x 5.138	1200/650	1480 xx 1.25	68.50	154
3700	1x2x2x5x5x37	37x100	360 x 10.278	2400/1300	1480 x 2.5	137.03	308
4440	1x2x2x5x5x6x37	37x120	360 x 12.33	3600/840	1480 x 3	164.44	370

Only the first two periods are in the ratio of 1:2, but the third period differs and does not fit with any ratio. Therefore, the significance of 37 is not known. The breakings of numbers into multiples are shown in columns (2) to (4) clearly shows that they are in the ratio of 1.25 : 2.5 : 3. This was pointed out by Prof Seshagiri Sastri⁴ in 1897 and explained that

⁴ Sastri, M. Seshagiri. *Essay on Tamil Literature*. Printed at the SPCK Press, 1897.

one Jyotitavattam was divided into ratio as shown under column (6), the periods 1850, 3700 and 4440 were obtained. However, 1480 does not fit into any astronomically significant figure. Moreover, he himself has pointed out thatthe artificial figures impair much the authenticity of these accounts....Artificially consists in it symmetry⁵. But, the astronomical knowledge of the commentator cannot be underestimated, as he has given many examples in his commentary. In commentary to sutra.11, he mentions that the ancient Tamils celebrated three festivals –

1. Madurai – Avani Avittam
2. Uraiur – Panguni Uttiram and
3. Karuvur – Ulli vizha, each evidently coinciding with some astronomical conjunctions.

Years mentioned	Divided by 1850	Divided by 27	Divided by 12	Divided by 60	Divided by 108	Divided by 360	Divided by 365 $\frac{1}{4}$
1850	1	68.50	154	30.83	17.13	5.124	5.07
3700	2	137.00	308	61.67	34.26	10.23	10.13
4440	2.4	164.44	370	74.00	41.11	12.33	12.16

The years are divided by asterism (27 stars), Zodiac (12), Jupiter cycle (60), 108 (astronomical significance⁶), Lunar year (360 days), and Luni-Solar year (365 $\frac{1}{4}$ days), but none follows any pattern, as could be noted from the calculated ratio. Thus, it is evident that either 1850, 3700 and 7400 years or 1480, 2960 and 4440 years sequence should have been followed to keep the consistency of the ratio 1:2:3.

periods	Iraiyanar Agapporul	Iraiyanar Agapporul Modified	Yuga divided by human years	Yuga cycle simple	Yuga cycle
1	1850	1480	1200	4320	4,32,000
2	3700	2960	2400	8640	8,64,000
3	5550	3600	3600	12,960	12,96,000
4 extended	7420	4800	4800	17,280	17,28,000

⁵ "selfish authors who created history not from real facts but from the depth of their own imaginations", ibid., iii.

the memories of the ante-diluvial *cañkams* were "a mere fiction originated by the prolific imagination of Tamil poets..Ibid, p.39.

"With reference to the first two Sangams, I may say that the account is too mythical and fabulous to be entitled to any credit, and I do not think that any scholar who has studied the histories of the different countries of the world will be bold enough to admit such tales within the pale of real history, Ibid. p.v.

⁶ The number 108 is considered significant in astronomy because it relates to the distances between the Earth, Moon, and Sun. It also relates to the number of planets and houses in astrology.

Explanation

The diameter of the Sun is 108 times the diameter of Earth

The distance between the Earth and the Sun is 108 times the diameter of the Sun

The distance between the Earth and the Moon is 108 times the diameter of the Moon

In astrology, there are 12 houses and 9 planets, which multiply to 108

In Chinese astrology, there are 108 stars, with 72 being malevolent and 36 beneficial

The number 108 is also significant in Indian cosmology and is said to have a deep connection to the human body

As it resembles, the four yugas and their calculations, they are considered as follows:

The number of years of Yugas: According to Sanskrit literature, including astronomical, mathematical and connected works, the number of yugas are Kreta, Treta, Dwapara and Kali containing 17,28,000, 12,96,000, 8,64,000 and 4,32,000 years respectively. They are in the ratio of 1:2:3:4. the total number of years = 43,20,000, known as Mahayuga. The word 'Yuga' connotes conjunction, i.e., conjunction of planets, planets with asterism or existence of the world between two deluges.

The four yugas and their containing years are tabulated as follows:

Yuga	No.of years	Multiples of 108	Multiples of 10800	In terms of Divine years x Human years
Kreta	17,28,000	108 x 16,000	10800 x 160	4800 x 360
Treta	12,96,000	108 x 12,000	10800 x 120	3600 x 360
Dwapara	8,64,000	108 x 8000	10800 x 80	2400 x 360
Kali	4,32,000	108 x 4000	10800 x 40	1200 x 360

Different yugas followed: in India, the concept of yuga ranges from 5 to 43,20,000 years depending upon different astronomical reckoning.

1. **Five year Yuga:** The meeting of Sun and Moon in Dhanista constellation in the Zodiacial sign Makara / Capricon in once in five years is taken as basis.
2. **Twelve years Yuga:** The time taken by Jupiter to go around the Sun i.e, 12 years is taken as basis. The event is signified with Kumbamela and astronomically symbolized with Kumbha / Aquarius.
3. **Sixty year Yuga:** when both the above systems are combined together, the 60 year yuga is evolved, $5 \times 12 = 60$. The sixty years are divided into 5 cycles of 12 years. This is followed in India.
4. **43,20,000 years Yuga:** the Galaxy takes 4,32,00,000 years to complete one revolution. The number of revolutions made by Sun is one yuga is 43,20,000.

In the Surya Siddhanta, it is stated that in a Mahayuga (43,20,000 years), the cycle of asterism falls back eastward by thirty score ($30 \times 20 = 600$) revolutions. Thus, the time of a complete libration is 600th part of the period 43,20,000 years i.e, 7,200 years. If the limits of the libratory movement from the fixed point to be 27 degrees in either direction, it gives the annual rate of motion of equinox 54 seconds, which is remarkable approximation to the modern value of about 60 seconds⁷. J. Fillizoat points out the Indian concept of a great year 10,800 or cosmic cycle of 4,32,000 has influenced the Greek and Babylonian astronomers⁸. Joscelyn Godwin posits that it is probably from Hindu tradition that knowledge of the ages reached the Greeks and other Indo-

⁷ J. Fillizoat, *A General History of Sciences*, edited by A. Tandon, London, 1957, p.144

⁸ Ibid, pp.136-137.

European peoples⁹. Godwin adds that the number 432,000 (Kali Yuga's duration) occurring in four widely separated cultures (Hindu, Chaldean, Chinese, and Icelandic) has long been noticed¹⁰.

Thus periodization of Iraiyanar Agapporul and Yuga cycles is tabulated as follows for comparison:

Iraiyanar Agapporul	Yuga cycle
The number of each Sangam has been on the decrease.	The number of years of each yuga has been on the decrease.
They do not fit into any ratio, though they are roughly in 1:2:3	They fit into 4:3:2:1
The total number of years 9990 does not appear to signify any astronomical event / measurement.	The total number of years 43,20,000 signify the revolutions of Sun in one yuga.

Therefore, it is evident that the years taken 1850, 3700 and 4440 for each Sangam are not related to any astronomical basis but to some other basis.

Whether the ancient Tamils had the astronomical knowledge and observation?:

Definitely, the ancient Tamils had the astronomical knowledge and observed planets and stars. Astronomical observations connected with geographical and geological factors and processes had also been observed and noted by them. Some examples from the Sangam literature are given as follows:

1. The waxing and waning of Moon was observed on the shores and the 15 days calculations noted – the tradition of observation of Moon on the shores is an interesting feature of Sangam astronomy (Puram.400:1-4).
2. ***Munnir naduve pagar pozhuthu*** = the midday / noon was observed / noted at the place where three waters (of oceans meet) – it proves the astronomical observations taken place at the tip of this Bharat in the ancient period (Peru.441-444).
3. The time recorded with the rising of Sun from the eastern ocean and setting at the western ocean for the purpose of day and night – again a practice of astronomical observation made and calculation of days (Madhu.238-245).
4. The midnight tie when Hero quenches his lust with his Heroine compared with the journey of ship – the midnight reckoning of time very interesting, as it resembles the “Ardha-ratrika” system of Aryabhata¹¹ (Agam.137:13-14).
5. Fish sleep at “***idaiyamam***” – this recording of incidence may point to midnight reckoning (Agam.142:20-26).
6. The rising of sea waters roaring during Full Moon night – ***paurnami*** (Agam.201.8-10).

⁹ Godwin, Joscelyn (2011). ***Atlantis and the Cycles of Time: Prophecies, Traditions, and Occult Revelations. Inner Traditions***. pp. 300–301.

¹⁰ Ibid, p. 304

¹¹ Aryabhata propounded the Ardha-ratrika (midnight) system in which the beginning of Kaliyuga was placed six hours earlier, at the midnight of 17/18 February 3102 BCE. However, Modern simulations have shown that the planets were not in conjunction in 3102 BCE.

7. The eighth day of Moon appearing in the midst of ocean (during the midnight?) – a reference to midnight reckoning of time (Kurunt.129.3-5).
8. Piraimathi kadal = the phase of Moon at the ocean, i.e, observed at ocean – the observation done at the shore (Kuru.315: 1-2).
9. The fishermen start sleeping hearing the sound of breaking of midnight roaring of oceanic waves – to hear the sound whether they had any devise? Any case, it again points to midnight reckoning of time (Natri.159: 9-11).

Mamimekhalai talks about one Cakravalakottam, which is nothing but a replica of Universe with all planets revolving around Mount Meru. It could have also been an observatory, as the name connotes Cakravala = horizon + kottam = a place., thus, the place for horizon implies an observatory to observe horizon, sky with asterism and planets. The south India had been vigorously pursuing astronomical and mathematical activities since ancient times. The important scholars like Chanakya, Aryabhata, Vararuci etc., were only hailing from South, i.e., the ancient Tamilagam.

Other natural calamities: in Tamil, events like Uzhi, Madangal, Kadalkol, Kadal kollal, Yugam, Yugamudivu have been specifically mentioned. Except Uzhi and Madanga, the other expressions Kadalkol, Kadal kollal, Yugam, Yugamudivu etc., are of later origin and usage. The specific references are discussed as below:

Uzhi: the word connotes lengthy life, long period, the life of Brahma, the end of an aeon / yuga, fate (as it is derived from uzh), thus, it also implies the connected five elements uzhikkalam, uzhikkatru (the Great Wind produced at the time of the end of the world), uzhitti (the Great Fire produced), uzhinir (the great Waters produced), uzhinal (the day on which the Great End of the world takes place). The word specifically deals with the deluge, destruction of world, merger of Five elements, conjunction of planets as detailed below:

Vella varambina uzhi pogiyum killai vazhiya palave (வெள்ள வரம்பின ஊழி போகியும் கிள்ளை வாழிய பலவே - Ingu.281) – Long live for billion of years and even beyond the end of the world – it is the traditional act of praising, applauding or giving benediction involves comparison of life time with that of vellam , a very big number in counting and the limit Uzhi i.e., the end, but not end. Thus, uzhi is not only the cyclical nature of birth and death of men, but also that of creation and destruction of Universe and world.

Ingu.482 – the time of end of the world.

Padit. 21.38 – similar praising of king is found – Long live for billions of years and even beyond the end of the world.

Padit. 63. 20-21 – same as above.

Padit. 72.15 – uzhitti.

Nalvagai uzhiyin navitrum sirappinal (நால்வகை ஊழியின் நவிற்றும் சிறப்பினை - Pari.3.80) – the calculation of four yugas¹²:

¹² The Paripadal description appears to be specific and scientific also -

2-1-19: succinctly and briefly describes the creation of Universe as found in the Puranas. It covers the entire cosmological and astronomical account of all.

In the beginning, the natural moon.....(the portion is missing in the script) according to tradition, the world of Gold and earth was destroyed;

1. The end/ destruction started from the sky – invisible or incomprehensible end is the result of the creation of growing blackish ether / cosmos.
2. The end/ destruction started from the Wind – propelled and enraged end through blowing winds.
3. The end/ destruction started from the Fire – the reddish flames engulfing end.
4. The end/ destruction started from the Water – specifically by the melting away of ice.
5. The end/ destruction started from the Earth – land slide, earthquake, tectonics etc., (This is added, though not mentioned in Paripadal)

Thus, the cyclic destruction passed away..

2.4 – the end starting from ether / cosmos – karpam

2.6 – invisible or incomprehensible end

2.7 – propelled and enraged end

2.8 – the reddish flames engulfing and

2.9 – the end caused by the melting of ice.

2.12 – cycle ends

2.17 – numbering or counting associated with endings.

2.79 - karpam

3.23 – the uzhi occurs when there was conjunction of

1. Tisenganal- the reddish and fiery one (Mars).
2. Kutram – constructing one i.e, making world submerged (Jupiter)
3. Gnaman – the death bringing or ending (Saturn)
4. Gnayiru – radiant and brilliant Sun (Sun).

The conjunction occurred in the midnight of February 17/18 3102 BCE that is the starting of Kali Era / Yuga according to astronomical calculation made based on Surya Siddhanta.

17.8 – karpam

3. 22-24 – the end of uzhi

3.80 – the four uzhis / yugas. They are occurred in terms of 1, 2, 3, 4 and so on. This might imply that the four uzhis or yugas have their years in the , ratio of 4:3:2:1 as it tallies with the traditional yuga cycles discussed above.

6.3 – the submergence of land mass during uzhi.

விசம்பில் ஊழி ஊழி ஊழி செல்லக்
கரு வளர் வானத்து இசையில் தோன்றி,
உரு அறிவாரா ஒன்றன் ஊழியும்;
உந்து வளி கிளர்ந்த ஊழி ஊழி ஊழியும்
செந்தீச் சுடரிய ஊழியும்; பனியொடு
தன்பெயல் தலைஇய ஊழியும்; அவையிற்று
உள் முறை வெள்ளம் முழுகி ஆர்தருடு,
மீண்டும் பீடு உயர்பு ஈண்டி, அவற்றிற்கும்
உள்ளிடு ஆகிய இருநிலத்து ஊழியும் ...

பாமீனக் காலென்ப் பாகென் ஒன்றென
இரண்டென மூன்றென நான்கென ஐந்தென - ஆறென
ஏழென எட்டெனத் தொண்டென
நால்வகை ஊழி.என் நவிற்றும் சிறப்பினை 80

3.25-26 – the connection seval with uzhi i.e, Tirumal / Vishnu converted / dried deluge waters into cock / seval / fowl. This myth is exploited by the Sangam poets in transporting astronomical principles into prang, pallor, dusk, soliloquy, union and other acts of lovers to indicate systematic periodization of day and night (implying conception, birth of child etc)

Sivaka cintamani has the following references:

274 – tittiral – uzhitti implied

1138 – **uzhitiral pampu serntha olimigu parudhi** – at the time of deluge, the Snake shaped Raghu and Ketu, the dual planets tried to cover the brilliant Sun

1929 – uzhitti – compared.

2581 – pandal uzhi = old uzhi = Kreta or Treta yuga implied.

Madangal: literally it means constriction, Contraction or all coming into one i.e, the end of the world or starting of another aeon. The word has been used to imply deluge, conjunction of planets, the Great fire:

Pari. 1.44: Tirumal / Vishnu contains everything in Him i.e, He is the great Clock of the Cosmos, Universe and World calculating, measuring and controlling every movement of worlds, planets and asterisms, protecting all living and non-living things.

Pari. 3.8 – the servant of the Death God Yama, thus, implying death or end of every thing.

Padit. 62.8 – the Great Fire.

Padit. 2.16 – the Great Fire, but it has been associated with the other four elements..

Therefore, it is evident that the ancient Tamils of the material period were aware of such deluges taking place relating to their affected lives recorded in their literature.

Possible period of Sangams: now, the historians and scholars of various fields have accepted that the Sangam period was 300 BCE to 300 CE or 500 BCE to 500 CE. Accordingly, the following periods as given in the Iraiyanar Agapporul are taken for reckoning, the following table is obtained. If the intervening period between deluges is taken as 1000 years, then, the extended period as shown in the last two columns are obtained.

300 BCE	500 CE	500 BCE	300 BCE	If 100 years gap for each deluge is taken into account	
300	500	500	300	300 BCE	500 BCE
1850	1850	1850	1850	1800	1800
1550	1550	2350	2150	2150	2350
3700	3700	3700	3700	1000 deluge	1000 deluge
5250	5250	6050	5850	3150	3350
4440	4440	4440	4440	3700	3700
9690 BCE	9690 BCE	10,490 BCE	10,290 BCE	6850	7050
				1000 deluge	1000 deluge
				7850	8050
				4440	4440
				12,290 BCE	12,490 BCE

The calculations made are purely based on the figures given in the text as discussed above.

Conclusion: In view of the above discussion, the following points are placed as concluding remarks:

1. Most of the Tamil Pundits, historians and researchers have argued for and against the existence of the “three Sangams” or “Three Tamil Academies” based on the literary evidences, during the last 150 years.
2. Unfortunately, the pro-Tamil ideologists and Dravidologists do not read the Sanskrit literature, particularly mathematical and astronomical texts and hence, they could not understand such details¹³ to interpret the years of three Sangams.
3. Perhaps none analyzed the number of years given by the poet in mathematical, astronomical or cosmological context, comparing with the respective texts.
4. Kamil Zvelebil after going through all references, concluded that¹⁴, “*On the whole, the legend as it appears today either in Nakkiran’s version or in the Tiruvilayätarpuränm is unacceptable as such in its present shape. Nevertheless, the tradition concerning the Academies cannot be dismissed as pure fiction, and as based on some Jaina or Buddhist assembly of monks. It could not have arisen without historical basis, without a rational kernel.*” Also, the dating of the work is placed in the 10th cent.CE, as¹⁵, “*The earliest and most sensible commentator on Tolkäppiyam, known by the appellative Uraiyäciriyan, 'The Commentator' lived between 900-1200 A.D., probably in the tenth Century.*”
5. Only Seshagiri Sastri had gone into the aspect of “Jyotivattam” as pointed out above. Thus, such scientific analysis and interpretation shows that the poet knew such interpretation, but, either quoted the figures wrongly or the scribes noted erroneously¹⁶. Different calculations done for ratio arrived at clearly prove the poet knew the astronomical significance¹⁷.
6. Therefore, the astronomical approach, analysis and interpretation of the periods of “Tamil Sangams” prove not only the poet was well aware of it, but also such knowledge existing in the academic curriculum of Tamilagam and South India during the 9th -11th centuries.

¹³ However, they continue to claim that Tamils only invented and discovered everything found on the earth quoting, பொய் அகல, நானும் புகழ் விளைத்தல் என் வியப்பாம்?

வையகம் போர்த்த, வயங்கு ஒவி நீர் - கையகலக்
கல் தோன்றி மன் தோன்றாக் காலத்தே, வாளோடு

முன் தோன்றி முத்த குடி. புறப்பொருள் வெண்பா மாலை - கரந்தைப் படலம் 35 | குடிநிலை]

¹⁴ Zvelebil, Kamil. "***The earliest account of the Tamil academies***, in *Indo-Iranian Journal* 15.2 (1973): p.132

¹⁵ Ibid, fn.18.

¹⁶ The details are available as introduction to the work that has no relation. Thus, such mss leaves might have been mixed up also. In the mss of boat-ship building, Vastu details were found appended and this clearly point to mix-up mss palm leaves. The European collectors were also responsible for such a mix-up.

¹⁷ However, as the manuscripts were written by the scribes regularly, some error might have been crept in. Moreover, the Indian manuscripts (Palm Leaf Books) on science and technology were in great demand and were taken away regularly by the Middle-east and European explorers, travelers and visiting agents.